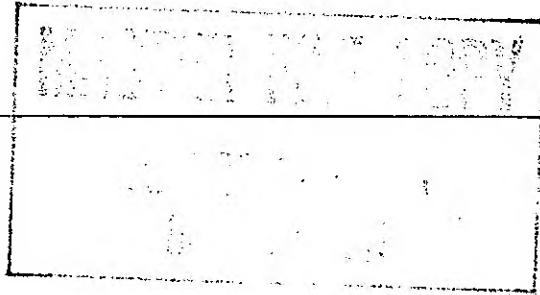




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LDC Export Processing Zones: A Stimulus for Western Investment

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A Research Paper

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A Research Paper

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World Issues Branch, OGI, [redacted]

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**LDC Export Processing
Zones: A Stimulus for
Western Investment**

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Summary*Information available
as of 27 July 1984
was used in this report.*

During the last 15 years, export processing zones (EPZs) have become an important mechanism for attracting export-oriented foreign investment to developing countries. These enclaves, which provide industrial infrastructure and special tariff, fiscal, and regulatory incentives, are attracting over \$1 billion per year in export-oriented foreign investment. This foreign capital, in turn, has generated about \$7.5 billion annually in foreign exchange. We also found that the zones have generated almost 1 million direct jobs and added another 350,000 jobs in related activities. The developmental impact outside the enclaves, however, is not as significant, mainly because investments are concentrated in labor-intensive assembly industries that do little to enhance the labor skills or technological capabilities of the host country. Moreover, the zones rarely develop linkages to domestic enterprises because they usually rely on foreign suppliers.

Despite their current limitations, we believe the zones could attract more private-sector resources and contribute more to the pace of LDC economic development if:

- Host countries offer simple incentives, provide a well-maintained industrial infrastructure, utilize market-sensitive zone managers, and promote resource-supply linkages between EPZ firms and domestic enterprises.
- International and regional development organizations expand their technical assistance services on zone planning, implementation, and operation.
- Developed country governments continue trade concessions that benefit EPZ exports.

A confluence of events make the next one to three years highly favorable for establishing or expanding EPZ operations in developing countries. The recent Caribbean Basin Initiative (CBI) has created a duty-free window to the US market that probably will prompt a surge of EPZ growth in most Caribbean and Central American countries. A further stimulus to zone development is the recent flight of investment capital from Hong Kong, a result of investor uncertainty over the Colony's future. Given the out-growth of new technologies that are automating the routine, labor-intensive assembly operations of traditional zones, we believe the focus of EPZ operations will probably gravitate toward data entry, computer software development, and other labor-intensive service industries.

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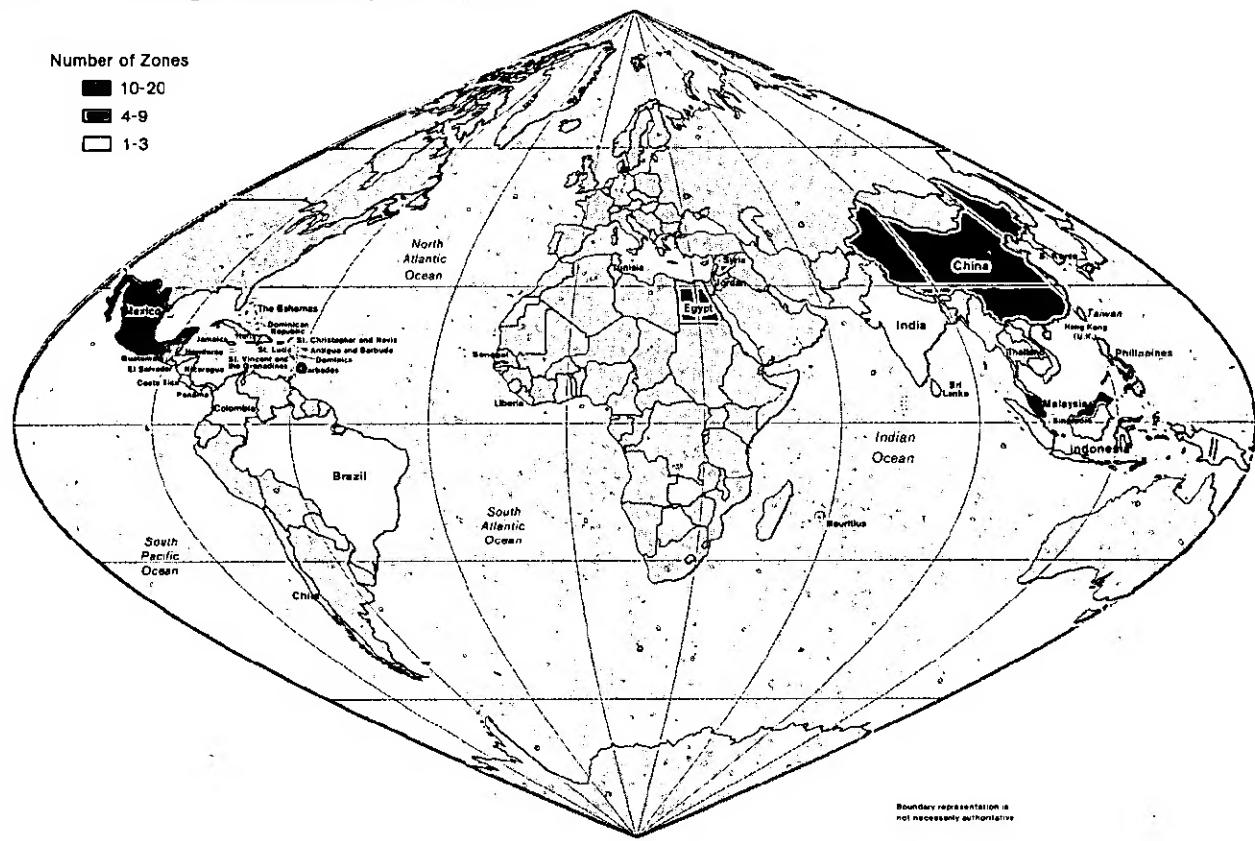
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Figure 1
Third World Export Processing Zones, 1982



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Preface

This paper is part of ongoing Directorate of Intelligence research concerning Third World economic development prospects. Taken as a whole, this research concentrates on how the pressures and options facing LDCs can affect the East-West strategic balance in the Third World. This report focuses on export processing zones, which have become one innovative way for LDCs to tap Western investment capital and private-sector industrial expertise.

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LDC Export Processing Zones: A Stimulus for Western Investment

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Introduction

Export processing zones (EPZs) have flourished in developing countries. In 1970 only eight zones were operating in eight countries. By 1983, 109 EPZs were established in 38 developing countries (figure 1). Moreover, at least 13 additional zones are in the planning or developmental phase in such countries as Peru, Bolivia, Ecuador, and Grenada. The rapid growth in EPZs is occurring throughout the Third World, although South America has been slow to get involved (figure 2). Of the active zones, 47 are in Central America and the Caribbean, 33 in Asia, 24 in Africa, and five in South America. The Asian zones are larger and account for most of the investment, employment, and output of Third World EPZ projects.

EPZs are enclaves in which the host country provides industrial infrastructure—including buildings, power, and roads—and special tariff, fiscal, and regulatory concessions to investors in export-oriented manufacturing industries. The growth in EPZ activity derives from the zones' purported ability to attract foreign investment and promote LDC economic development. Proponents contend the special incentives and infrastructure offered by the zones will attract foreign export-oriented industries that, through their investments and operations, generate foreign exchange, provide employment opportunities, transfer new technologies, upgrade labor and management skills, create linkages with the domestic economy, and, thus, contribute to export and industrial development.

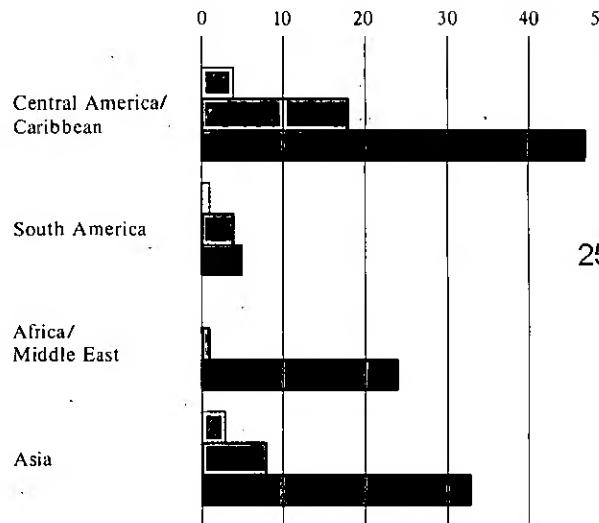
Although large numbers of developing countries are turning to EPZs, there is no consensus on the impact of EPZs on host-country economic and development progress. This study examines how the EPZs' theoretical advantages have worked by addressing three questions:

- *Have EPZs attracted private-sector resources from developed to developing countries?*
- *To what extent do the export-oriented industries contribute to host-country economic development?*

Figure 2
**Growth in Third World Export
Processing Zones**

Number of EPZs

1970
1975
1982



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- *Can the zones' role in transferring private-sector resources to developing countries be enhanced?*

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A Stimulus for Private Investment

Past Performance

The zones have become a significant mechanism for attracting additional export-oriented foreign investment. EPZ administrators indicate that by creating

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Evolution of EPZs

The first EPZ was established in 1959 at Ireland's Shannon International Airport. During the 1940s and 1950s, Shannon was a major international refueling center for propeller airplanes on transatlantic flights. The introduction of longer range jets left Ireland with a large, fully developed but little-used airport. In response, the Irish Government introduced several innovations, including a 25-year tax holiday on export sales and duty-free privileges for export-oriented manufacturing industries, to develop an airport-based industrial estate.

This action fundamentally changed the airport's orientation from transshipment and warehousing to export-oriented manufacturing. Within eight years, the Shannon EPZ was contributing 20 percent of Ireland's manufactures exports and employing 8,000 people. It proved to be an important testing ground for policies that might have been resisted when proposed nationally. It pioneered the development of Ireland's export-based industrial sector throughout the 1960s.

The success of the Shannon EPZ coupled with UN and World Bank promotion of export-led industrialization stimulated the developing world's interest. In 1966 an EPZ was established in Kaohsiung, Taiwan. Within three years the site was fully occupied, and two other zones were opened by 1971. The Shannon and Kaohsiung EPZs quickly became models for the development of export-oriented manufacturing sectors in developing countries, and the number of EPZs established by LDCs rapidly increased.

climates favorable to small- and medium-sized multinational enterprises, the zones attract many firms that normally avoid unfamiliar political and regulatory environments. According to the United Nations Industrial Development Organization (UNIDO), the zones' net addition to foreign investment in EPZ host countries over the past decade totals between \$10 billion and \$15 billion.

Most EPZ investments have been concentrated in labor-intensive assembly industries. Electrical and electronics industries account for 53 percent of EPZ sales, textiles and garment industries for 14 percent, and food products and tobacco industries for 6 percent. The average capital investment for machinery, equipment, and working capital in EPZ industries is about \$800,000. This ranges between \$250,000 and \$600,000 for garment and footwear industries and \$1 million and \$4 million for pharmaceutical, transport equipment, and machinery industries. Electrical and electronic industries are generally in the midrange, with an average fixed investment of \$500,000 to \$1 million.

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The largest foreign investment inflows to EPZs traditionally have occurred as countries shift from import-substitution strategies to export-led growth. South Korea, Singapore, and Taiwan are the best examples of this foreign investment pattern. Once a viable manufacturing base is established, however, the EPZs' importance as a source of foreign investment diminishes. These newly industrializing countries (NICs) were able to sustain their industrial expansion by including the EPZs in comprehensive national strategies promoting outward-looking growth policies.¹ Each of the EPZs functioned as a stimulant to export-oriented industrialization.

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Factors Affecting Capital Inflows

Our analysis indicates that the volume of private investment in an EPZ depends on both the trade preferences extended by developed countries and the political-economic conditions in the host country. No EPZ, for example, has prospered amid nonpreferential access to developed country markets, political instability, or regulatory harassment. A few zones, however, have overcome one or more of these handicaps.

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Developed-country trade preferences providing a major stimulus to private-sector resource flows to developing country EPZs over the past decade include:

- *The Caribbean Basin Initiative* (CBI) has opened a duty-free window to the US market for most Caribbean and Central American export industries. Zone administrators throughout the region report a significant rise in investor interest by American and Asian firms since its enactment in 1983.
- *US Tariff Concessions 806.3 and 807* permit US products to be assembled and processed overseas and returned to the United States free of duty for the value added by operations performed abroad. Garments from the border zones of Mexico have especially benefited from these provisions, as have electronics exports from Malaysia.
- *The Generalized System of Preferences* (GSP) calls for preferential tariff reductions by most developed countries on most manufactured and semimanufactured products from developing countries. In 1981, Hong Kong, Singapore, Taiwan, and South Korea accounted for almost 40 percent of all eligible items. Impending changes in the GSP, which graduate these Asian NICs out of duty-free access to developed-country markets, have accelerated the flow of investment from the NICs to EPZs of developing countries maintaining GSP privileges.
- *The Multifiber Arrangement*, which sets export quotas on developing country garment and textile industries, has also been a major stimulus to EPZ growth. As traditional centers of wearing apparel and textile manufacturers reached their export quota limits for the US market, firms have diversified into EPZs located in such nonquota-bound countries as Mauritius.
- *The Lome Convention* enabled more than 40 developing countries to export manufactured products into the European Community at low or no duty for the past eight years. It has been a primary stimulant to EPZ activity in former African, Caribbean, and Pacific region colonies.

Political-economic conditions in the host country affecting EPZ capital inflows include:

- *A stable investment climate.* We know of no successful zones in countries suffering from endemic civil unrest or military strife. The political unrest in Sri Lanka and the Philippines over the past year, for example, has reduced the inflow of EPZ investment capital. Moreover, El Salvador, Honduras, and Jamaica have experienced disinvestment in EPZs because of the perceived risks from turbulent political conditions. The recent capital flight from Hong Kong suggests that even exceptionally attractive basic factors of production will not hold entrepreneurs when a country's stability is seriously questioned.
- *The availability of competitive factors of production.* A major attraction to foreign investors is the cost and productivity of the local work force. The frequent employment of youths from rural areas demonstrates that the EPZ labor force need not have industrial experience. The productivity of unskilled workers in Mauritius, Dominican Republic, Taiwan, Malaysia, and Mexico account for much of the attraction of those EPZs. A zone's success also depends on its access, either domestically or through foreign suppliers, to competitively priced raw materials and intermediate goods. When linkages are established with domestic suppliers, such as in Taiwan, Malaysia, and South Korea, foreign investment is substantially higher.
- *Simple, blanket incentive programs.* Although the extent and duration of the incentives are important, most foreign investors are more sensitive to the regulatory and paperwork requirements for investment applications and operating permits. Responding to investor preferences, several EPZs in Malaysia, the Philippines, Taiwan, and South Korea have installed one-stop investment service centers. Zones in India and Honduras have lost several investment opportunities because of the difficulties and delays in securing necessary approvals.

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- *Well-maintained industrial infrastructure.* Successful EPZs have a dependable power and water supply, low transportation costs, nearby housing, and adequate building facilities. Frequent power outages or brownouts, as in Jamaica and Dominican Republic, greatly diminish a zone's attractiveness. Although freight services and costs are also important to many firms, distance from supplies and markets does not appear to be an overriding concern of foreign investors. Products shipped from EPZs in Brazil and Mauritius must travel unusually long distances to reach final markets. In both cases, however, the volume of air traffic has made air freight rates less expensive than other transportation. The cost and quality of zone buildings are also important to zone performance. In most cases, private EPZ developers have been more successful in ensuring basic amenities and services than their public-sector counterparts.
- *A market-sensitive marketing, planning, and management staff.* Marketing and promotion are essential in the initial stages of zone development to trigger the requisite foreign investment. The failure of zone planners to phase zone development with demand is the main reason for the disappointing performance of several EPZs. For example, in Guatemala a \$12 million investment in an extensive EPZ at Santo Towas de Castillo attracted only one factory after two years. Zone management is also responsible for responding to tenant problems concerning services and building maintenance. Although these positions have been effectively handled by both the private and public sectors, the financially successful zones are invariably privately managed. Public-sector zones in Mexico and Mauritius, for example, have lost a number of potential tenants because foreign investors found nearby privately operated zones to be more responsive to the maintenance and service needs of companies operating there.

Impact on Development

Our analysis indicates that the export-oriented industries' most significant contributions to EPZ host countries include additional foreign exchange earnings and employment opportunities. The EPZs' success in using the foreign capital to enhance technological capabilities, upgrade labor and management

skills, or create linkages with the domestic economy, however, has fallen short of theoretical expectations. Moreover, the zones' contributions are not shared equally by all developing countries. The most successful EPZs are in Malaysia, Mexico, Singapore, South Korea, and Taiwan. In other developing countries, the EPZs have served only as a marginal instrument in promoting economic growth and development (table 1).

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Creates Employment Opportunities

The high concentration of foreign investment in labor-intensive industries has significantly affected job creation in EPZ host countries. Data indicate that the net gain in direct employment totals almost 1 million jobs for EPZs in developing countries. The zones in China, Taiwan, Malaysia, Singapore, and South Korea provide most employment opportunities, accounting for 50 percent of the total. Next in importance, largely because of the employment generated in the border zones of Mexico, are the Caribbean and Central America, which account for some 28 percent of the jobs. The jobs created in several EPZs represent a significant share of total manufacturing employment, ranging between 35 to 55 percent for Barbados and Mauritius; 10 to 20 percent for Malaysia and Dominican Republic; and less than 10 percent for South Korea, Sri Lanka, Hong Kong, Brazil, and India. Zones in Colombia, Panama, Senegal, and Guatemala are not significant sources of jobs. Most of the job opportunities have been for women, except in the Middle East.

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The indirect employment generated by EPZ industries is also significant. Estimated to total 350,000, the indirect jobs are concentrated in service and feeder industries. Employment in the service industries includes transportation, housing, food preparation, warehousing, general construction, and training staffs. The indirect employment effects are greatest in countries such as Malaysia and Taiwan, where linkages with local feeder industries through the purchase of domestic raw materials and intermediate goods are strong.

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Table 1
Characteristics of Third World Export
Processing Zones, 1982

Country	Number of Projects	First EPZ	Ownership	Direct Employment	Number of Firms	Exports (million US \$)	Major Industrial Sectors	
							Industry	Share of Exports (percent)
Central America and the Caribbean								
Bahamas, The	1	1960	Private	1,500	8	NA	Pharmaceuticals and petroleum refining	100
Barbados	10	1965	Public	15,000	NA	140	Electrical parts Garments	47 22
Costa Rica	2	1972	Public	12,000 ^a	60 ^a	57 ^a	Garments Footwear	82 6
Dominican Republic	4	1970	1 public 1 private 2 mixed	18,921	93	150	Garments Tobacco and cigars	46 34
El Salvador	2	1976	Public	3,000	NA	77	Electronics Garments	75 20
Guatemala	1	1981	Public	15	1	1	NA	NA
Honduras	1	1976	Public	1,300	12	16	Garments	100
Jamaica	1	1976	Public	3,000	14 ^a	22	Garments	65
Mexico	17	1965	Private and public	130,049 ^a	605 ^a	1,622 ^a	Electronics Garments	93 ^a 7 ^a
Nicaragua	1	1977	Public	5,000 ^d	3	2	Garments	86
Panama	1	1980	Public	250	4	1	Garments	100
Eastern Caribbean ^b	5	1978	Public	8,500	20	30	Garments Electronics	65 25
Haiti	1	1965	Public	48,000 ^a	200 ^a	180 ^a	Garments and footwear Sporting goods Electronics	39 31 8
South America								
Chile ^c	1	1976	Public	3,200	NA	11	Warehousing	NA
Colombia	3	1971	Public	2,800 ^d	25	NA	Furniture and garments	100
Brazil	1	1967	Public	49,213	194	75	Agricultural goods	45
Africa and the Middle East								
Egypt	4	1974	Public	8,000	NA	NA	Food and beverages, chemicals, and metal parts	NA
Jordan	1	1973	Public	600	NA	NA	NA	NA
Liberia	1	1975	Public	15	1	1	Hand tools	NA
Mauritius	5	1970	2 public 3 private	23,470 ^a	118 ^a	112 ^a	Garments	71
Senegal	1	1974	Public	250	1	0	Construction materials	NA
Syria	6	1976	Public	1,500	60	NA	Perfumes and cosmetics	NA
Tunisia	6	1972	Public	16,000 ^d	NA	NA	Textiles and garments	NA

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Table 1
Characteristics of Third World Export
Processing Zones, 1982 (continued)

Country	Number of Projects	First EPZ	Ownership	Direct Employment	Number of Firms	Exports (million US \$)	Major Industrial Sectors	
							Industry	Share of Exports (percent)
Asia								
China	4	1979	Public	100,000	NA	NA	Garments and footwear, electronics	NA
Hong Kong ^c	2	1977	Mixed	4,000	26	NA	Garments, textiles, and electronics	NA
India	2	1965	Public	7,500	93	148	Electronics	100 ^f
Indonesia	1	1973	Public	11,191	18	18	Garments	65
Malaysia	12	1970	Public	71,000	89	1,482	Electronics	56
Philippines	4	1972	Public	20,991	58	156	Food manufactures Garments Electronics	23 20 17
Singapore ^c	1	1972	Public	88,000	2,000	1,320	Petroleum products Electronics	37 18
South Korea	2	1971	Public	120,000 ^d	89	679	Electronics Machinery	60 10
Sri Lanka	1	1979	Public	27,000	14	79	Garments	80
Taiwan	3	1966	Public	70,047	267	1,598	Electronics	60
Thailand	1	1981	Public	15,500	25	NA	Garments Crafts Metal products	NA

^a Designates countrywide data for entire EPZ sector (including single factories with EPZ status).

^b The Eastern Caribbean includes Antigua, St. Christopher and Nevis, Dominica, St. Lucia, and St. Vincent and The Grenadines.

^c For 1979.

^d For 1978.

^e Hong Kong and Singapore represent employment and exports from industrial estates and EPZs only.

^f Major industrial sectors refer only to SEEPZ.

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Boosts Foreign Exchange Earnings

The LDCs' experience with EPZs indicates that the zones contribute to the foreign exchange earnings of EPZ host countries. This results from the direct foreign investment in zone infrastructure and the export sales by zone-based manufacturers. In 1982 EPZ exports totaled \$7.5 billion, roughly 6 percent of the export earnings generated by the developing countries' manufactures exports.

The net foreign exchange earnings retained by EPZ host countries after the foreign exchange outlays on imported inputs, expatriated profits, and other capital outflows are subtracted, however, has been mixed. Countries realizing substantial net foreign exchange

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earnings from their EPZs include Taiwan, Malaysia, Mauritius, Dominican Republic, and Mexico. The exports from Taiwan's three EPZs, for example, earn more net foreign exchange than all other export industries in the country. In other cases—notably Senegal, Costa Rica, Guatemala, and Colombia—EPZs have contributed little or nothing to export earnings, and have resulted in government losses of foreign exchange for zone infrastructure development.

only the labor-intensive stages of their production processes to the EPZs. The preassembly stages and stages requiring advanced technology usually remain in the developed countries. The NICs are the few 25X1 countries to successfully use EPZs to upgrade the technological sophistication of their production processes. This is in part because their ambitious industrial strategies seek to replace a large share of the labor-intensive production with capital-, skill-, and technology-intensive industries

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In most cases, EPZs generating large net foreign exchange earnings have a high local value-added content. In the more developed zones, such as those in Taiwan and Malaysia where domestic raw materials and intermediate goods are a major input in the manufacturing process, EPZ firms created value added at an average rate of 30 to 50 percent of export sales. This compares with the typical added value of about 25 percent of export sales for newly established EPZs. The complexity of the assembly or manufacturing operations undertaken by zone firms also affect foreign exchange earnings. Countries with higher skilled labor and capital-intensive production earn more foreign exchange.

Export processing zones have not traditionally been an important mechanism for upgrading labor and management skills. Industries established in EPZs offer employment opportunities mainly for unskilled and semiskilled labor. Where worker skills are upgraded, they differ little with the jobs skills outside the EPZ. Although the transfer of technical skills to technicians and midlevel managers in EPZ industries can be significant, most of these workers remain with EPZ industries, and the skills are slow to diffuse into the domestic economy. The exceptions are Taiwan, 25X1 Singapore, South Korea, and Malaysia where the 25X1 absorption capabilities of domestic labor is high because of the training programs offered to individuals working in higher technology industries (table 2).

Provides Few Spinoffs to the Indigenous Economy
 Biases implicit in the EPZ device limit the linkages between EPZ firms and domestic enterprises. Forward linkages, the processing of zone products in the host country, are rarely established because of restrictions on EPZ sales to the domestic market. Backward linkages, the processing in the zone of raw materials and intermediate goods from the host country, are limited by the vertical integration of most EPZ multinational firms, which requires EPZ firms to import most of their materials. Where EPZ enterprises are not vertically integrated, they choose host-country materials only when they are supplied at or below world market prices. However, few host countries have efficient, internationally competitive domestic industrial sectors to supply EPZ manufacturers.

Other External Benefits

The developing countries' experience with EPZs indicates that the benefits to an EPZ host country can extend beyond foreign exchange earnings and employment benefits. Sometimes EPZs are used to disperse industry away from urban centers or to increase the use of domestic raw materials and intermediate goods. The Kandla zone in India and the Bataan zones in the Philippines were established mainly as alternates to the countries' congested major seaports. In the Manaus EPZ in Brazil, more than 1,500 miles west of the coast in the jungle, foreign manufacturers must purchase a portion of their raw material and intermediate goods from domestic producers. In each instance, the zones have at least partially dispersed industry or used domestic raw materials.

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Export processing zones have not proved to be an important mechanism for transferring technology to most host countries. The production processes in the zones generally are not technically sophisticated. Because of the labor-cost differentials between developed and developing countries, foreign firms move

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Table 2
Comparison of Export Processing
Zone Performances

	Panama's Colon Free Zone: A Low Achiever	Taiwan's Nantze EPZ: An Impressive Performer
Profile	The Colon Free Zone was established as a center for international commerce, storage, and reshipping. Activity concentrated on warehousing and distribution. In 1980 a joint World Bank and Panamanian Government revitalization program expanded the zone to include 478 acres for export-oriented manufacturing firms, making it the largest as well as oldest free trade zone in the Western Hemisphere. The existing manufacturing industries include two apparel manufacturers, one bicycle assembly plant, and one pharmaceutical company.	The Nantze export processing zone (NEPZ) was established in 1970 to attract foreign investment, improve the balance of payments, create job opportunities, and transfer technology and skills. Occupying 218 acres, NEPZ is the largest of Taiwan's three EPZs. Over 50 percent of the total investment in NEPZ is concentrated in electronics industries.
Contributions to Development	<p>Direct investment in the manufacturing enterprises has been negligible. Foreign investment in the apparel industry of less than \$300,000 is far below the average for apparel manufacturers in other EPZs.</p> <p>Manufactures exports are less than \$1 million per year. The net foreign exchange earnings generated from these exports are minimal.</p> <p>Approximately 250 jobs have been created.</p> <p>Manufacturing is limited to finishing and labeling and involves a minimum of technology transfer and labor skills.</p>	<p>In 1983 the actual investment in the NEPZ amounted to \$106.6 million. On average, firms have a capital investment of \$1.1 million, ranging from \$327,000 for knitwear to a high of \$3.4 million for machinery manufacturers.</p> <p>NEPZ exports totaled \$364 million in 1983. Since 1965, NEPZ has generated over \$1 billion in net foreign exchange earnings.</p> <p>NEPZ has generated 21,351 jobs.</p> <p>NEPZ has proved to be of significant value in transferring "know-how" in quality control and in export-product marketing. It has also been effective in introducing technical experience in color TVs, optical products, integrated circuits, and printed circuit boards.</p>
Factors Affecting Performance	<p>Little or no linkages to domestic industry have resulted in either the commercial or industrial activities. For the firms engaged in manufacturing, 100 percent of the raw materials are imported. Domestic value added is less than 30 percent.</p>	<p>Taiwan's export manufacturers have developed strong linkages with local suppliers of raw materials and intermediate goods, which satisfy over 30 percent of input requirements. Over 40 percent of NEPZ export value is added domestically. For goods produced under 806 and 807 provisions, 82 percent of the exports to the United States represents value added in Taiwan.</p> <p>NEPZ performance has benefited from Taiwan's favorable economic climate. Foreign investors are attracted by the competitively priced, prebuilt, standard factory buildings; the growing supply of highly productive middle management and technically skilled personnel; the increasing strength of Taiwan's capital markets; the extensive and well-maintained roads, ports, and airports; and the indigenous private sector that has become skilled at supplying components and business services. Moreover, Taiwan's free market, free trade policies also attract export-oriented manufacturers.</p>

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In our judgment, EPZs can also serve as a "proving ground" for basic policy reforms. Taiwan and South Korea, for example, used their EPZs as demonstration areas for market-oriented policies before their introduction nationwide. The EPZs' success later enabled advocates to press for a shift from import-substitution to export-led development strategies. Reducing tariffs, taxes, and regulations in targeted areas can have powerful demonstration effects, at far less political costs than by attempts to overhaul economic policies nationwide.

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Future Trends

We believe a confluence of factors will lead to an increase in EPZ use by developing countries during the next one to three years. A recent stimulus to zone development is the Caribbean Basin Initiative, which opens a duty-free window to the US market for most Caribbean and Central American export industries. According to zone administrators, the CBI created a surge in investor interest that already has contributed to the leasing of all available prebuilt factory space in Jamaica and Dominican Republic. They expect this trend to begin in other established zones as investors in the NICs, which are losing many of the cost advantages previously inherent in their domestic economies, become increasingly attracted to the Caribbean.

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A further stimulus to zone development is the recent surge in capital flight from Hong Kong, caused by investor uncertainty over the Colony's future. Zone managers report that the long-idle inventory of pre-built standard factory buildings in the Coromandel EPZ of Mauritius has been leased out during the past year to Hong Kong firms seeking a more stable base of operations. We believe the growth in EPZ use will also be spurred by the NICs as they shift the manufacturing operations for products that are losing preferential access to developed-country markets to EPZs in developing countries still receiving developed-country tariff concessions.

We believe the form of EPZ operations will also change. As already described, one factor affecting EPZ activity is the continuing rise of protectionism. As developed countries erect additional tariff and

nontariff barriers to selected manufactures exports, the opportunities for many of the LDCs' traditional labor-intensive, zone-based, assembly industries will be reduced. A more difficult problem for traditional export processing zones, however, is the outgrowth of changing production technologies and investment patterns. Routine labor-intensive assembly operations are increasingly automated. As automation accelerates, we believe the zones' ability to attract their historical shares of routine assembly and manufacturing operations will suffer. Already, leading US firms are automating the manufacture of textiles and electronic components and relocating their plants in or near final markets.

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Although automation will weaken the comparative advantages of traditional labor-intensive assembly industries, we believe the changing technologies will generate new opportunities for production sharing. The advent of low-cost microcomputers has already resulted in a substantial growth of "offshore data entry" operations in the past five years. In these operations, large masses of corporate data are routinely entered into electronic data banks that are then transferred to corporate headquarters for processing and analysis. Companies such as American Airlines, National Demographics, and General Motors report savings of 50 percent because of the substantially reduced labor costs in offshore data entry zones in the Caribbean. This trend is likely to extend to software development and other labor-intensive service industries. We believe developing countries that use their EPZs to widen access to such skills and technologies will probably substantially improve their trade and growth performance.

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Implications

Although EPZs are not a solution to the developing countries' industrialization problems, we believe they are a useful tool for attracting private-sector resources

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to developing countries.² Moreover, we believe the zones could attract more private-sector resources and contribute more to the pace of LDC economic growth if:

- Host countries offer simple, blanket incentive programs; provide well-maintained roads, power, buildings, and other industrial infrastructures; use a marketing, planning, and management staff that is sensitive to market developments; and promote linkages between EPZ firms and domestic suppliers of raw materials and intermediate goods.
- International and regional development organizations expand their technical assistance services on zone planning, implementation, and operation. Principal developing country needs include information on minimizing EPZ development costs for the public sector; on establishing market-sensitive systems for zone management and promotion; on reducing regulatory, tax, and tariff barriers; and on strengthening linkages by EPZs to indigenous entrepreneurs and institutions.
- Developed-country governments continue to extend tariff preferences that benefit EPZ exports. The duty-free access provided by developed-country trade preferences has significantly affected EPZ performances. Continued or wider application of the GSP, Sections 806.3 and 807 of the US Tariff Concession and other measures such as the CBI would provide a major stimulus to EPZ growth.

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As the EPZs take hold, they can stimulate private-sector development in key LDCs, thereby alleviating serious economic, political, and social problems. Progress on this front is important as more LDCs begin to reassess their policy toward the Western economic system. This reevaluation is increasing as Third World countries such as Mozambique realize that the Soviet model is flawed. To the extent that EPZs are used, Third World countries can gradually channel critical Western capital investment as well as technology into their economies.

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